certain number-problems is discussed; we gather that this application is original on Mr. Dudeney's part. Digital properties are but little known to mathematicians, and we hope his example may serve to direct attention to the method: it was freely used by Bidder, the calculating prodigy, and in a certain class of arithmetical problems is of great assistance.

This notice will indicate generally the lines on which the book is written, and on the whole we should say that it is the best miscellaneous collection of the kind with which we are acquainted. The book is profusely illustrated, a marvel of condensation and cheapness, and singularly free from ambiguities and slips. It would be difficult to find a more attractive present for a schoolboy who is interested (as most schoolboys are) in such problems, for wherever he opens it he will find some amusing puzzle which will tax, and in many cases overtax, his ingenuity.

FOSSIL BOTANY.

Fossil Plants: a Text-book for Students of Botany and Geology. Vol. iii., *Pteridospermeae, Cycadofilices, Cordaitales, Cycadophyta.* By Prof. A. C. Seward. Pp. xviii+656. (Cambridge: At the University Press, 1917.) Price 18*s.* net.

IN the present instalment of Prof. Seward's well-known text-book on fossil plants the interest of the subject may rightly be said to culminate. For this volume deals exclusively with the groups of fossil gymnospermous plants, and here between its covers the reader will find spread out for the first time in full and proper perspective the significant discoveries and results of the last fifteen years. The fossil Gymnosperms include the great central groups of seed-plants, and of these one-third of the book is devoted to a consideration of the Pteridosperms and their attendant Cycadofilices, another to the Cycadophyta, whilst the rest is divided between the Cordaiteæ and a long chapter on fossil seeds. This last feature is a most useful digest of a complicated mass of literature and is a service that will be generally appreciated.

Modern advance, particularly as to the status of the Pteridosperms and the Bennettitales (Cycadophyta), has depended primarily on the study of petrifactions derived from Britain, France, and North America, whilst the knowledge thus obtained has been reinforced and extended by a critical consideration of impressions from which is gained a sort of twilight picture of these ancient vegetations. Prof. Seward possesses the indispensable qualification in the writer of a book like the present of a practical familiarity in handling both these sources of information—petrifactions and impressions—and when, in addition, the task is performed with such evident sobriety and good judgment, the result is a book of the greatest permanent value. It should be added that never before has the subject-matter of fossil botany received such full and connected treatment, nor could the marshalling of the facts be bettered.

In the treatment of his subject-matter the author, in large degree, lets the facts tell their own story. Whilst the theories of fossil botanists are adequately displayed, the author resists all temptations to speculate in the field of plant phylogeny. Nevertheless, apart from his own relevant researches, a good deal of unpublished matter is brought into this book, especially minor points collected from all quarters, each by itself, perhaps, insufficient to justify separate publication, yet in the aggregate appropriately included in a book like this.

Turning over the pages of this book, it is remarkable how large a share in the establishment of fossil botany has been taken by this country. Following the older period of description under Williamson came a newer epoch of critical redescription, with correlations of members previously scattered. With the momentary exhaustion of the English coal-balls of Palæozoic age, the interest passed to the Bennettitales from the American Jurassic rocks, once more to cross the Atlantic to Scotland, where new forms of great antiquity and interest are now coming to light. It is to be expected later on that a more intensive and scientific exploitation of our own and the world's coal resources will continue to produce a harvest of fossil plants rich enough to give full occupation to palæobotanists, and at the same time still further to elucidate the scheme of evolution of the vegetable kingdom.

In conclusion it is fitting to mention that this volume is dedicated by Prof. Seward to the memory of the late Prof. C. R. Zeiller, who for so many years was attached to the Ecole des Mines at Paris. Zeiller appealed to workers in this country not only by reason of his lofty character and eminence as a fossil botanist, but particularly because he, more than any other, established and promoted cordial solidarity between the ranks of fossil botanists on either side of the Channel. It is largely on this account that the recent severe and deplorable losses which the fraternity of palæobotanists has suffered in France (including, in addition to Zeiller himself, Lignier, Grand'Eury, and the elder Bertrand) have evoked in this country a wide and sympathetic response which only the loss of personal friends can arouse.

OUR BOOKSHELF.

With the French Flying Corps. By C. D. Winslow. Pp. 190. (London: Constable and Co., Ltd., 1917.) Price 3*s.* 6*d.* net.

THIS short volume contains the experiences of an American volunteer who joined the French Flying Service, and gives a brief account of the various steps of his training. The book can in no sense be called a scientific work; indeed, the use of technical terms is very loose, as, for instance, the definitions of angle of attack and angle of incidence given on p. 30. Statements such as that on p. 26 to the effect that "when two aeroplanes

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are too near each other the suction of their propellers pulls them together, and they become uncontrollable," would certainly not command scientific justification. This technical inaccuracy does not detract from the interest of the book as a record of the actual experiences of an aviator during training and in flying over the enemy's lines. The greater part of the volume consists of such experiences and forms interesting reading. It is well that those who labour in the aeronautical world at home should have some idea of the actual fighting conditions at the Front, and the volume before us gives a very good account of the impressions of a pilot engaged in this thrilling phase of modern warfare. A detailed knowledge of the principles of flight is by no means necessary to enable a man to become an expert pilot, any more than a detailed knowledge of engineering is necessary to enable a man to ride a bicycle or drive a car.

The volume is essentially descriptive and non-technical, but it is, nevertheless, interesting to the scientific worker who wishes to obtain a mental picture of the actual conditions under which our airmen work, and of the wonderful part played by the aeroplane in modern warfare.

The Born Fool. By J. W. Byrd. Pp. 316. (London: Chatto and Windus, 1917.) Price 6*s*. net.

THIS is the record, in considerable detail, of the childhood and adolescence of an engineer and geologist who, born and moving in middle-class circles, convinces himself that it is his duty, on purely altruistic grounds, to marry a woman not only of lower social and intellectual status than himself, but also appreciably older. In parts the story is excellent (if this recalls the curate's egg, *absit omen*), and, despite some few *naïvetés* and trivialities—slight blemishes inseparable, perhaps, from the maiden production of any author—it is a very interesting study, abounding in natural touches and realistic incidents.

The atmosphere of the tale is to a large extent engineering and geological. The hero, at the age of twenty-one or thereabouts, becomes a fellow of the Geological "Institute," in consequence of a thesis of extraordinary merit and a discovery of unique importance. He also acts as resident engineer on water-supply undertakings of some magnitude. Precocity of this kind is, of course, not unusual in the realm of fiction. At the same time, the book envisages certain sociological, sexual, and religious problems in a way which will appeal to thoughtful minds, so that there is a wide and varied range of interest for many readers.

Quantitative Chemical Analysis. Adapted for Use in the Laboratories of Colleges and Technical Institutes. By Dr. F. Clowes and J. B. Coleman. Eleventh edition. Pp. xxiv+580. (London: J. and A. Churchill, 1918.) Price 12*s*. 6*d*. net.

THE eleventh edition of this well-known work of reference has been carefully revised and new matter has been introduced in the Appendix. The results of typical analyses obtained in the laboratories of the authors occupy eleven pages, and will prove useful to analysts and others for reference and guidance; the list of important works of reference provided will also be equally serviceable.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Ramsay Memorial Fund.

WE are asking the hospitality of your columns to enable us to report the progress of the Ramsay Memorial Fund, which was instituted just a year ago with the object of raising a sum of 100,000*l*. as a suitable memorial to the late Prof. Sir William Ramsay. The fund has now reached a sum of just above 30,000*l*. The latest and most important donation to the fund has been a sum of 5000*l*., contributed by Mrs. Wharrie. It may be remembered that Messrs. Brunner, Mond and Co. have promised a similar sum of 5000*l*. The honorary treasurers have received a large number of other sums, ranging from 1000*l*. to one guinea. From this it will be seen that the Ramsay Memorial Fund has now passed its experimental stage, and is making good progress towards the sum which the committee aim at raising. The Executive Committee are confident that with the assistance of the large number of co-operating committees which have been formed in all parts of the British Empire and many foreign countries they will be successful in completing the fund of 100,000*l*., but in order that this may be the case they must appeal to the generosity of the public for further donations, large and small. They hope that the generous example of Mrs. Wharrie and of Messrs. Brunner, Mond and Co. will be followed by others, but they will also greatly welcome gifts of any amount ranging from one guinea upwards.

The fund of 100,000*l*., when raised, will be devoted to two objects of great national importance: the establishment of Ramsay Memorial fellowships for research in chemical problems as applied to industry, and the foundation of a memorial laboratory of engineering chemistry. Those who contribute to the Ramsay Memorial Fund are contributing in the most definite and direct way to the national prosperity after the war, in which the advancement of science must play an increasingly important part. Donations should be sent to the joint honorary treasurers, Ramsay Memorial Fund, University College, London, Gower Street, W.C.1.

RAYLEIGH,
Chairman of the General Committee.
HUGH BELL,
Chairman of the Executive Committee.
GLENCONNER,
J. N. COLLIE,
Honorary Treasurers.

The Beginnings of Porcelain in China.

IN the review of our publication by Dr. J. W. Mellor (NATURE, October 4, p. 88) there is a misunderstanding which we feel should not be allowed to pass in the interest of your readers. Dr. Mellor states that we regard the so-called Han pottery as porcelanous, and as the forerunner of true porcelain. Such a statement has never been made; we always held, and still hold, that Han pottery is nothing but a common stoneware.

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